

for this lamp has provision for a small ultraviolet filter easily inserted and removed. The picture-printing sprocket, having no center shaft, allows the free passage of light to the center of the sprocket and pressure shoe.

At this point, midway between the points where the teeth enter and leave the perforations, there is least movement of the two films, and therefore the more perfect exposure at this point, and a noticeable improvement.

The motor drive (Fig. 3) is a $\frac{1}{8}$ -hp. synchronous gear reduction 15 to 1. There is a rubber disk 5 inches in diameter and $\frac{1}{4}$ inch thick having six holes connecting the motor to the printing sprocket, giving a smooth filtered motion to the mechanism. The gears are grease packed, ball-bearing, and "steel to non-metallic" throughout. All other bearings are oilless or "olite" bronze bushings and will run thousands of hours without re-oiling, requiring but a few drops at times. The motor and generator require oil occasionally. The grease-packed ball-bearings will last the normal life of the bearing, but can be repacked.

The generator voltage is regulated by the field winding rheostat immediately over the voltmeter (Fig. 1). Any voltage from 90 to 130 can be had. The sound-lamp control-knob is immediately over the voltage-control knob and the milli-ampere indicates the current needed (average about 0.8 ma.).

The automatic cut-out located in the base of the main casting (Fig. 4) will operate on a slow overload or on a dead short circuit, and protect the entire machine. A snap of the lever returns it to normal duty.

All sprocket-wheels are stainless steel and all idlers and rollers are of stainless steel or hardened steel. The speed is 75 feet per minute and the automatic light-control is 112 changes, 22 densities; 75 or 152 change controls can be had.

The printing is regular standard practice where the double system is used; *i.e.*, the picture is printed first. The print is rewound and threaded up with the sound-track and the negative passes through the sound unit only. If a composite negative having picture and sound on the same base is used, then the negative and positive are threaded up over the sound-drum and the sound added in same operation. The positive film is not carried completely around the drum with the negative, but is passed over the two rollers which separate the two except where the exposure is made, immediately under the black rubber roller. Thus the positive is in contact with the negative only slightly more than one inch, and creeping or buckling is eliminated.

A FILM-CEMENT PEN*

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Ever since film cement has been used for splicing motion picture film, many different methods of applying the cement to the splice have been used. The most common of all is the small bottle and brush. Prior to the invention of the pen described here there has been no really practical method.

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The pen is as easy to use as a fountain-pen or pencil, and makes a neat splice and saves a lot of time. It is constructed so that any quantity of cement can be released from its point. The point, which spreads the cement, is made of brass and acts as a plunger in the valve. Pressure on the brass point opens the valve and allows the cement to flow.

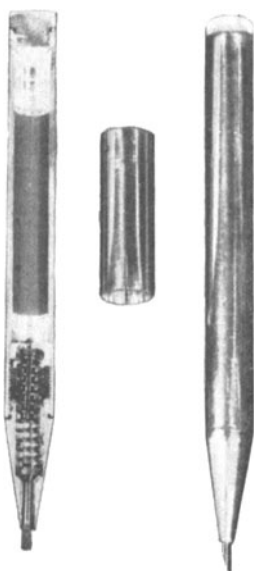


FIG. 1. Film cement pen.

The valve is a plunger operated by a coil spring, which controls the plunger or brass point. The valve is lapped in its seat to guard against leakage of cement or intake of air, thereby keeping the cement fresh at all times. One filling of the pen will make 1000 splices. The pen is made of light-weight material and can be carried in the pocket like a fountain pen, and the valve can easily be taken apart and cleaned.